Antigravity Arm Floats

Build Instructions

By Mike Turvey

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About

I originally developed Antigravity Arm Floats for my daughter, Kaylee. She has cerebral palsy and specifically has low tone in her arms. While I've worked on many projects to help make the world easier to interact with, this is certainly one of the more successful endeavors. The arm floats are designed to be 3D printable and use standard off-the-shelf hardware. The bearings will likely need to be special ordered, but can be acquired pretty cheaply. (I've used Aliexpress to source much of the hardware I've used on this project.) If you already have access to a 3D printer, you likely can build a pair of arm floats for under $40. It is my sincere hope that by sharing these plans, other children will have access to, and benefit from the same tools my daughter has benefitted from.

License

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See https://www.tapr.org/ohl.html

Required Tools

- Allen Wrenches
- Pliers
- Drill

Assembly

First, find your two LargeChain_608ZZ components. You will also need LargeChainToZ_Rod, as well as 6 608ZZ bearings, 2 M8x45 bolts, and 4 M8 lock nuts. Assemble these pieces as shown in the picture above so that you have one chain.

You'll now need to attach the Z rods to the LargeChainToZ_Rod component. For this, you will need 2 Z Rods, and 20 MR84ZZ bearings.

Once you have packed 5 bearings into each end of both rods, you will need to connect the Z-Rod to the LargeChainToZ_Rod component.
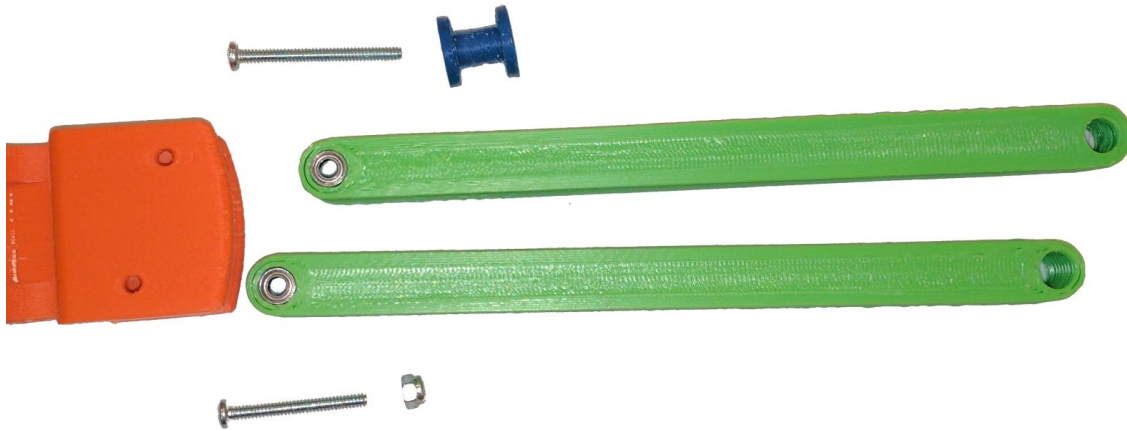
Note that in the hole nearest the edge, you will be using an M4x30 bolt that will terminate in a RubberBandPeg. In the other hole, you will be using an M4x25, and it will terminate in an M4 lock nut.

Next, you will need to do the same thing on the other end of the Z Rods, which will connect to a Z_RodToSmallChain. If you are doing a right arm, use the right arm variant, otherwise use the left.

Next, you will need to attach the small chain using M4x30 bolts. Do not forget to add the MR8422 bearings in the chain.

Once this is complete, you can start to see the arm floats looking close to a finished part.

Next, you will need to attach the SmallChainToForearmTrayMount to the chain pieces that you just added. It will also use an M4x30 bolt and lock nut.

Now, you will have this:

Next, you will need to place two MR8422 bearings in the ForearmTrayMount

And then attach it to the rest of the arm float.

Next, you will need to mount the ForearmTray using M4x20 bolts and lock nuts. Note also the adhesive Velcro on the bottom of the ForearmTray.

Next, put the non-adhesive loop side of the velcro on the ForearmTray. These will be the straps that hold the forearm onto the tray. You should size them to match the individual who will be using the arm floats. Once the Velcro is in place, it's time to focus on the wheelchair mount.

Here, you can see the MountAdapter attached to the PoleMount components. The PoleMount components are attached with 4 M4x15 bolts and lock nuts. The MountAdapter is attached using two M4x25 bolts, lock nuts. Two washers can also be used here to minimize the risk of splitting the MountAdapter.

Now, it's time to attach the Arm Float to the chair. This will use another M8x45 bolt and locknut.

And now for the final part, attach the rubber bands to the pegs to add tension to the arm floats. You will have to tune the number of rubber bands for the individual who will be using the arm floats.

Congratulations! You're done!